

LIV. *A Letter from Mr. R. E. Raspe, F. R. S. to M. Maty, M. D. Sec. R. S. containing a short Account of some Basalt Hills in Haffia* *.

Dear Sir,

Cassell, November 29, 1769.

Read Feb. 8, 1770. **I** HAVE lately discovered in the neighbourhood of this city, several hills, composed of basalt rocks, formed in polyedrous and mostly pentagonal columns. As this sort of stone has hitherto met with few observers, and affords many curious singularities, I desire you to lay before the Royal Society, the following account of my researches.

Our basalt rocks differ from those of the Giant's Causeway in Ireland, by their want of articulation; and from those anciently found at Syena in Egypt, and described with tolerable exactness by Strabo, Lib. xvii. by their being less thick, and not ex-

* The printing of this paper was postponed, on account of the delays and difficulties which attended the sending of the plates, which the author desired might be executed in the best manner, under his eyes.

ceeding

ceeding eight or ten inches in breadth, on unequal lengths from five to thirty feet.

The colour, hardness, weight, and substance of these stones sufficiently shew them not to belong to the genus of the marbles, amongst which Mr. Dacosta ranked them in imitation of the ancients.

Their substance is vitreous, analogous to that of the horny stones; they resist aqua fortis, and the chizzel: and only yield to a violent fire and the engravers wheel. Being worked in this manner they acquire the polish of the ancient basaltes, named by the Italians *Marmo paragone*. I have not yet completed a chemical analysis of these stones, which they richly deserve, chiefly as they contain small nests of crystals of tin ore, yellow, green, and black. These probably greatly contribute towards giving to our stones their singular and constant form. They seem to have acquired that form, in a different manner from that which influenced the strata and veins of other mountains. Lastly, no marks or impressions of any organical bodies are found either in the out or inside of these stones.

From all these considerations I was induced to attribute their origin, to a watery crystallisation, which might have taken place, either at the first settling of the chaos, or at the time of a dissolution of a great part of our globe. I had said the same thing in regard to the Giant's Causeway, in my account of the formation of new islands. But I now begin to entertain some doubts about that opinion, for these two reasons.

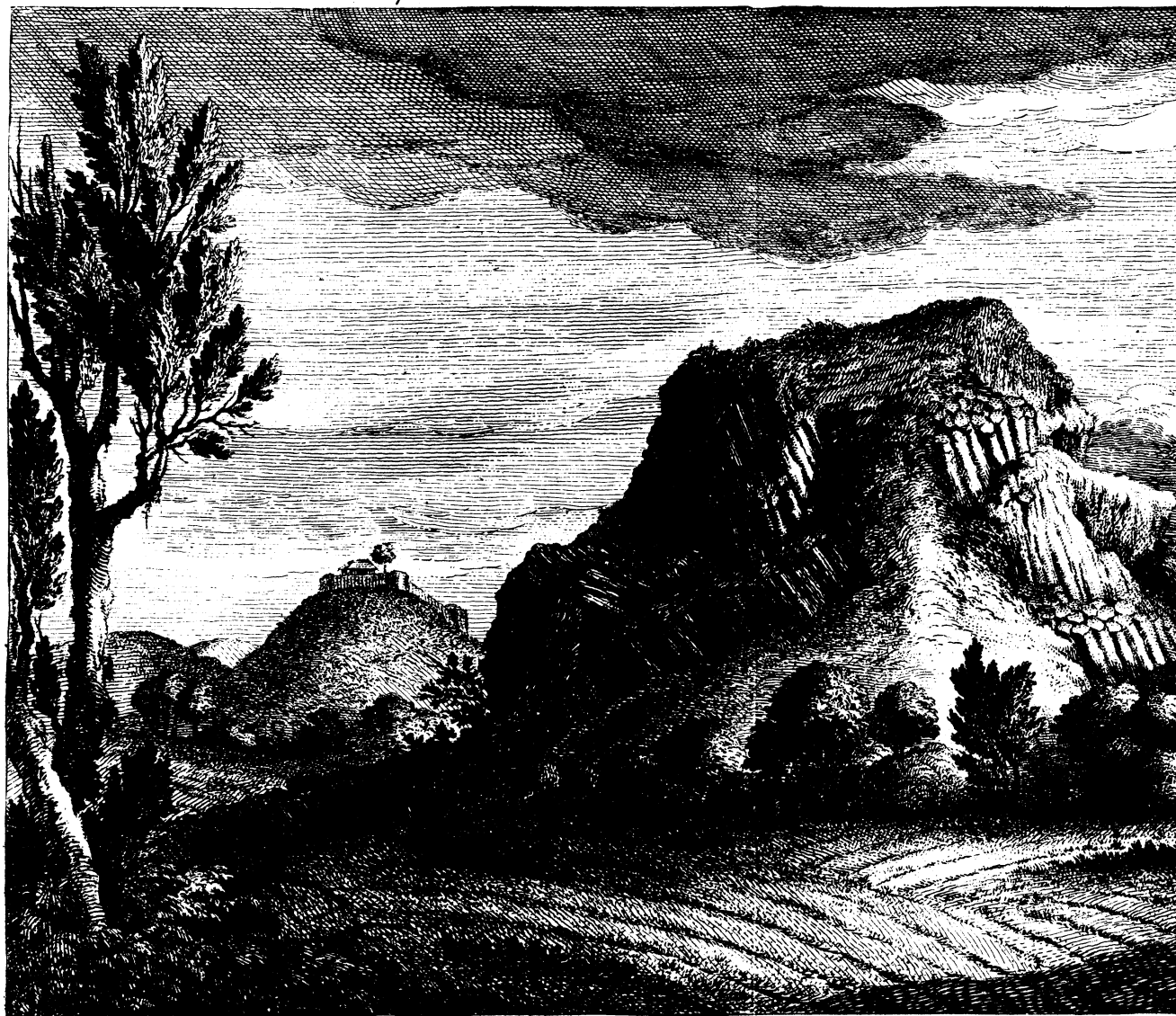
1. In the explanation of the plates of the French Encyclopedie, I find that an observation made by
Mr.

Mr. Desmarest, has induced him to attribute the origin of these stony columns to the matter of volcanoes refrigerated from fusion, having found the Auvergne basaltes placed on beds of lavas and scorix, just close to the opening of an extinguished volcano.

2. I discovered the same appearance at Habichswald about Weissenstein near Cassel. The top of the mountain, on which the famous cascades of the Landgrave Charles are built, and which the English troops made the place of their encampment after the battle of Willemstahl, is hardly composed of any thing but enormous pieces of lavas and scorix. Somewhat lower, and near the middle of the mountain, are found the basaltes. Many of these are formed in polyedrous pillars ; but some, which are the nearest to the aforesaid lava, only consist of shapeless roundish masses. On the other side of the mountain, and at a small distance from the lavas and scorix, is found one of the richest coal mines I ever saw, in a bed of the thickness of eighteen feet.

The Duke of Rochefoucault, at Paris, an eminent lover and encourager of natural history, has likewise assured me, that at Bolsena in Italy, the basaltes are found near the lavas of an ancient volcano, and that the whole island of Sicily, chiefly on the side of mount Etna, abounds with the same.

Hence, it may be allowable to attribute with Mr. Desmarest the origin of the basaltes to volcanoes. This opinion is further supported from many circumstances ; *viz.* the vitreous, and hitherto problematical substance of these stones ; the want of marine bodies, and lastly, the well-known experiment of some melted metals, which, when hardened, appear



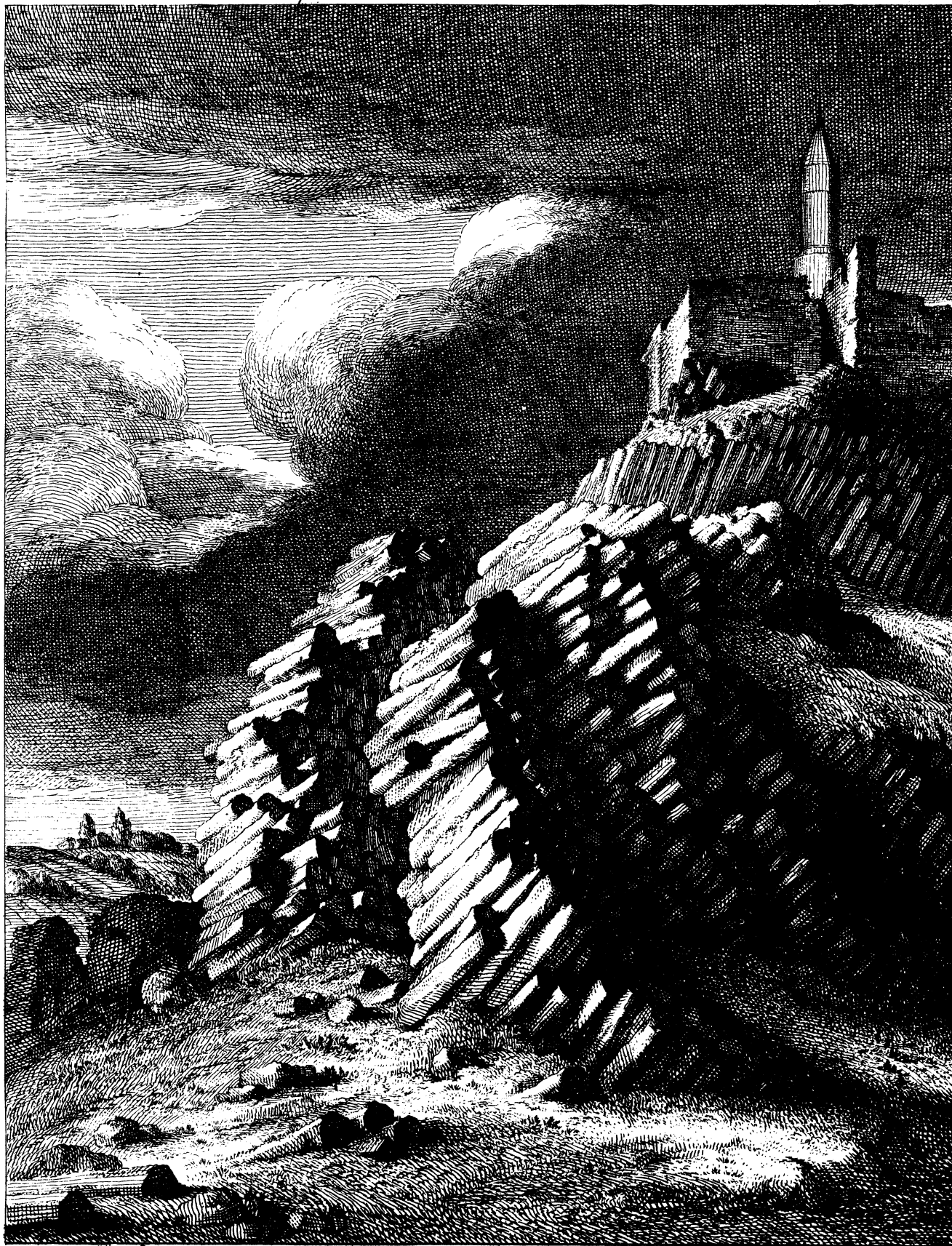
J. H. Fischbein. del.

N Basalt-Rock near Gudensberg in Hesse



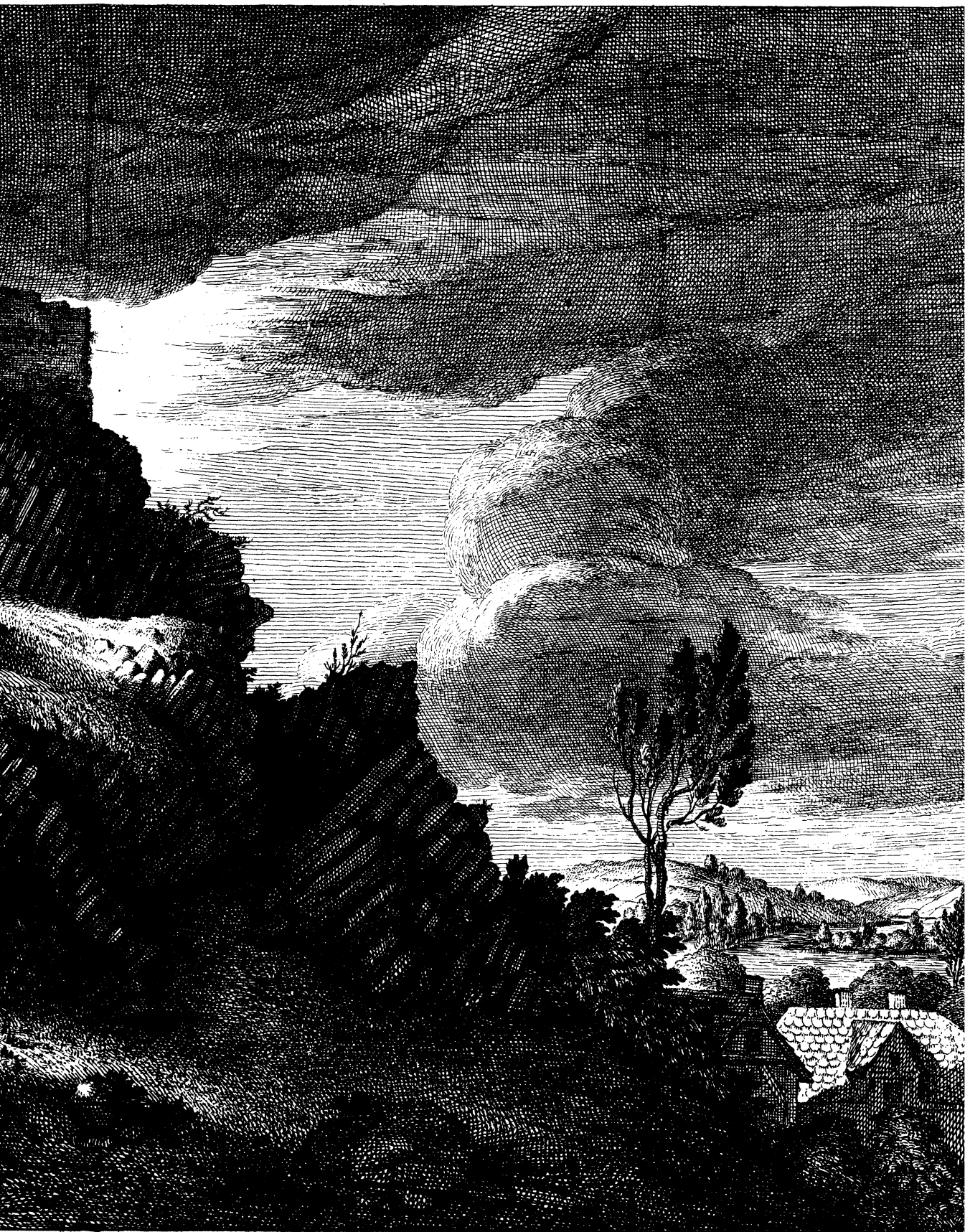
J. W. Neill sculp. Berlini 1771.

Hasfia



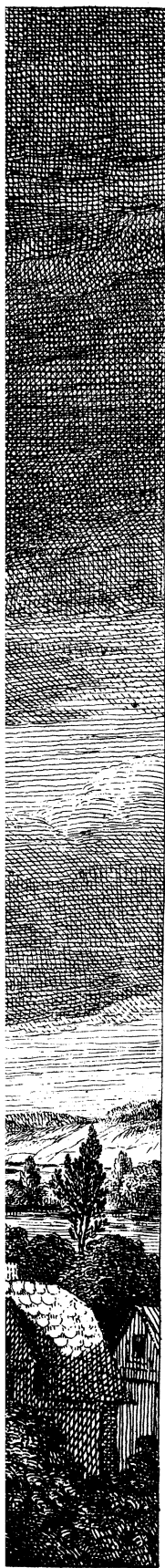
J. H. Tischbein. del. 1769.

Felsberg a castle in Hapsburg



Hasfia, situated on a Basalt-hill

J. W. Meil. Sculp. Berlin



alp. Berolini 1771.

in crystallizations not unlike those of watery congelations.

I must not however omit that the other basalt-mountains, which I have seen in Hassia, about Felsberg, Aldenberg, and Gudensberg, have shewn me basaltés without any addition ; these mountains standing by themselves, and shewing no traces of either lavas or scorixæ.

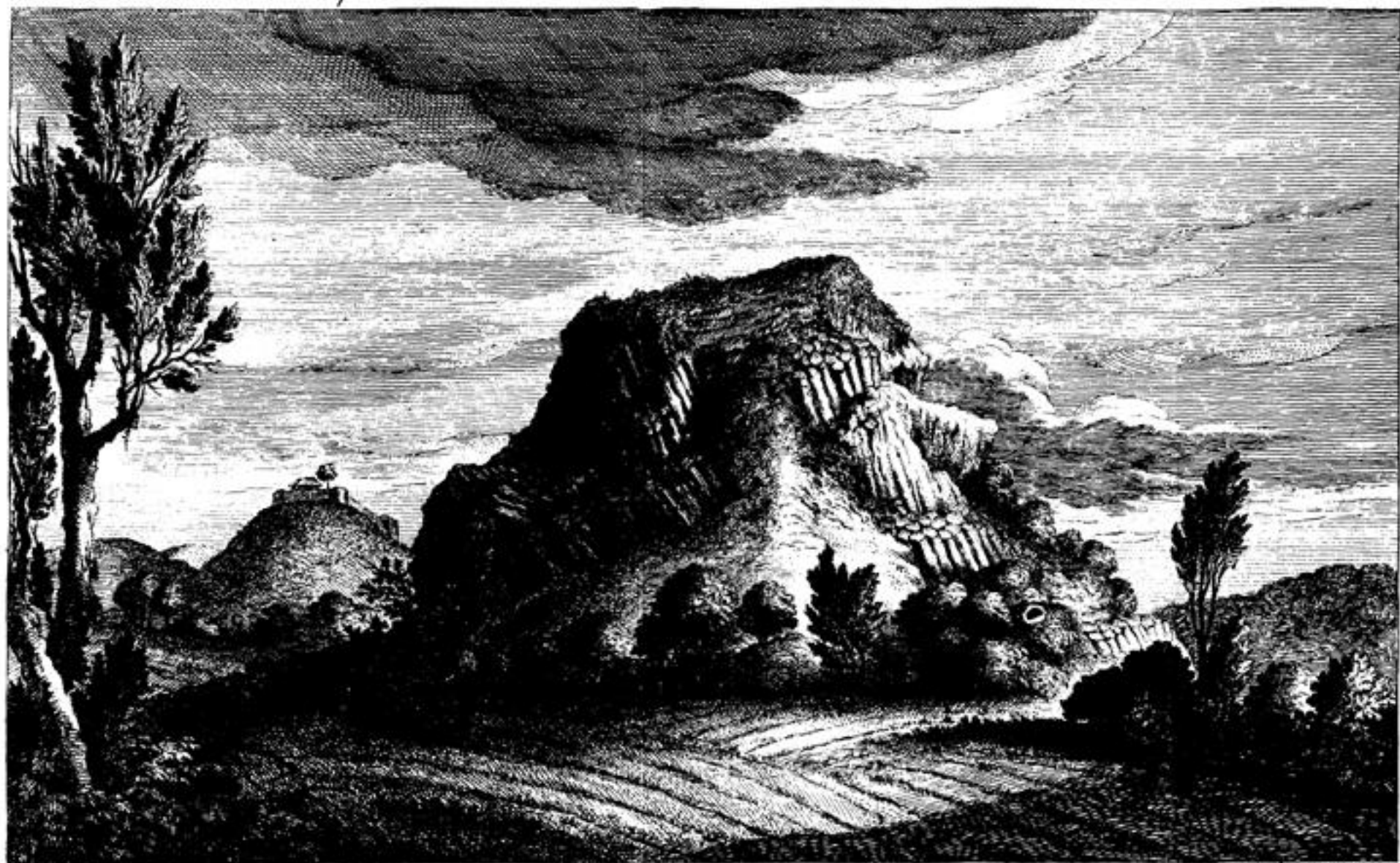
For the illustration of this paper, I have caused two engravings to be made ; viz. TAB. XVIII. of the basalt-rock near Gudensberg ; and TAB. XIX. of the basaltés of Felsberg.

I am, with particular regard,

Dear Sir,

Your very obedient servant,

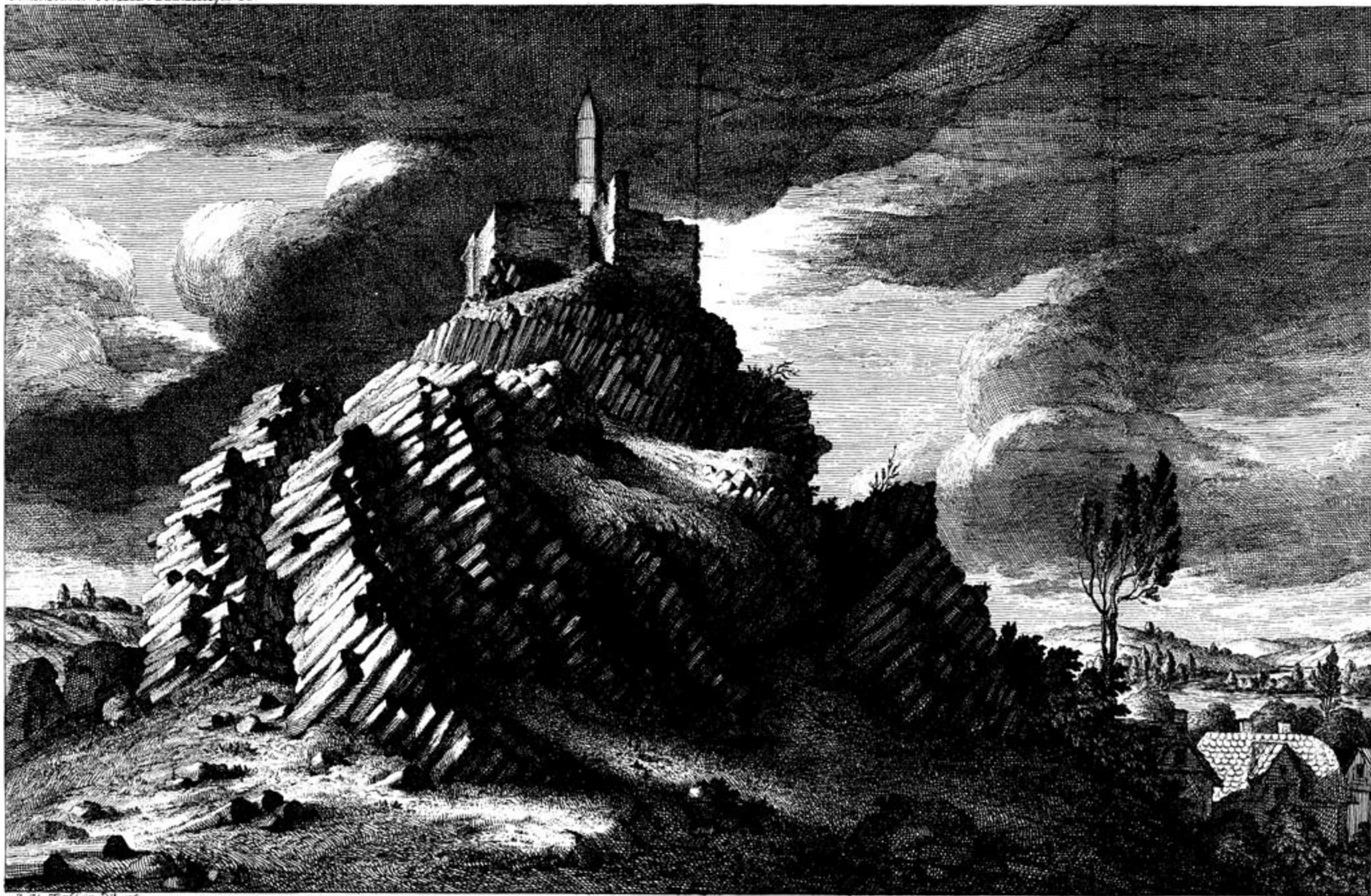
R. E. Raspe.



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A Basalt-Rock near Gudensberg in Hesse



J. H. Fitchman del. 1769

Felsberg a castle in Holfia, situated on a Basalt-hill

J. W. Meil sculp. Berolus 1771